ZY-1209 Mould Multi-arc Ion Vacuum Coating Machine

Overview

ZY-1209 multi-arc ion coating machine is a special vacuum coating equipment designed for depositing hard protective film on moulds and tools. It adopts new-type filter arc source technology and ion-assisted coating technology to ensure high coating efficiency and high quality film.

Introduction

ZY-1209 multi-arc ion coating machine is our own-developed hard and super hard film coating machine, it uses the unique new filter arc-source technology and ion-assisted technology to make the arc move quickly on the target surface, so that the target surface is evenly etched and the film would be smooth and dense with good adhesion and uniformity. Also, the application of new technology can improve the coating efficiency and then save running cost.

Its full-automatic intelligent control system with touch screen enhances the process stability, and the newly developed PLC program with self-developed coating special software ensures the simple and fast operation.

With excellent performance and stable operation, ZY-1209 multi-arc ion coating machine can depositing high quality hard film on all kinds of metal surface, the standard coating are TiN, CrN, TiCN, TiAlN, AlTiN, TiAlCrN, TiAlCN, AlCrN, etc. These hard functional films can dramatically improve the hardness, wear resistance and corrosion resistance of work pieces, and then greatly increase the service life. So ZY-1209 is widely applied in precise molding industry (stamping dies, shearing dies, standard mould pieces, forming dies, etc), tool industry (drill, cemented carbide, milling cutter, broach, cutting head, etc), the automotive industry (piston, piston ring, alloy wheels, spare parts, etc) and other fields.

Specification

Vacuum Chamber	φ 1200 × H950	Effective Coating Space	φ 650 × H600
Voltage/Hz	380V/50Hz	Actual Power	70KW
Max Diameter of Work-Piece×Quality	φ 150 × 12PCS	Target	12PCS
Ultimate Pressure	5.0×10^{-4}Pa	Leak Rate	$<10^{-3}$Pa.L/s
Pump Down Time	(from atm. to $6X10^{-3}$ Pa) ⩽15 mins	Occupation Space	L4200×W3200×H2200MM
Work-Piece Turntable	Lower Frame Structure	Vacuum Chamber Structure	Vertical Single Open
Standard Coating	TiN, CrN, AITiN, etc	Optional Coating	TiAICrN, etc
Power Source	Arc Power Source, Pulse-Bias Power Supply, Gun Power Supply	Vacuum System	Molecular Pump, Roots Pump, monoblock pump
Coating Cycle	3-6 Hours/Furnace	Working Gas	Ar, N_2, O_2, C_2H_2, etc
Output/Furnace	Milling Cutter φ 10×70 880 Blade φ 18×6 6400 Hobbing Cutter φ 80×80 64 Mould 500KG	Necessary Conditions	Circulating Water Pressure：2-3KG/CM^3 Flow：10T/H Compressed Air：4-6KG/CM^3
Operationl Mode	Manual + Semi-Auto + Full-Automatic/Torch Screen + PLC	Application	Moulds PVD Plating
Remarks	The Furnace, Outlook and Other Parameters Can be Customized According to Your Requirement		

Features

- The vacuum sealing of the chamber and the materials of indoor moving parts are all designed to withstand high temperature, so the machine can deposit super hard coating.
- The coating layer has higher bonding strength, smoother surface and better toughness, the coating thickness distribution is more uniform.

- Adopting fully automatic control system which can greatly improve the process stability.
- Large chamber design (vacuum chamber size of φ 1200 x H950), and removable lower frame construction ensure the rapid furnace switching and ultra-high production efficiency.

Characters of Functional Coatings

Coating Material	Coating Color	Microhardness （HV 0.05）	Coefficient of Friction	Thickness (um)	Max service temperature℃	Structure	Features
TiN	Gold	2400	0.40	1-4	500	Monolayer	Excellent hardness and anti-adhesion
CrN	Silver Gray	2000	0.40	1-4	700	Monolayer	Excellent anti-corrosion and anti-adhesion
TiCN	Blue Gray	3000	0.20	1-4	400	Gradient composite membrane	Low friction coefficient and Excellent hardness
TiAIN	Aubergine	3500	0.40	1-4	850	Monolayer composite membrane	Excellent hardness and anti-oxidation
AITiN	Purple Black	3800	0.45	1-4	900	multilayer composite membrane	Excellent superhardness and anti-oxidation
TiAICrN	Gray	3300	0.70	1-3	800	multilayer composite membrane	Excellent hardness, anti-oxidation and anti-impact
TiAICN	Rose Red	3500	0.20	1-4	800	Gradient composite membrane	Excellent superhardness and anti-oxidation
AICrN	Ash Black/ Dark Gray	3200	0.35	1-4	1100	Monolayer	Ultra-high anti-oxidation temperature and red hardness

Sample Pictures